



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

09/513,169

02/25/2000

Claire Martin

Q57933

7864

7590

04/29/2005

Sughrue Mion Zinn Macpeak & Seas PLLC  
2100 Pennsylvania Avenue NW  
Washington, DC 20037-3202

EXAMINER

JAGANNATHAN, MELANIE

ART UNIT

PAPER NUMBER

2666

DATE MAILED: 04/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/513,169

Applicant(s)

MARTIN ET AL.

Examiner

Melanie Jagannathan

Art Unit

2666

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 February 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-6, 9-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Wright et al. US 6,411,410.

Regarding claims 1-2, 10-17, the claimed method to perform central control of an in-line element in a tree-like network by a line terminator included in network together with a plurality of network terminators is disclosed by passive optical network with optical line terminator (Figure 2, element 12) and plurality of optical network units (elements ONU 1-5) where each ONU includes a tunable filter connected to downstream PON for receiving WDM optical signals from OLT. See column 1, lines 10-39, column 8, lines 1-17, column 9, lines 53-60.

The claimed determining by line terminator a first plurality of bits according to an identification of a selected element and a second plurality of bits according to an identification of locally predefined function is disclosed by control information divided into two fields for each wavelength and each field identifies the ONUs which must select that wavelength in each successive time slot. Examiner interprets field identifying ONU for certain wavelength as first plurality of bits according to an identification of a selected element and time slot and wavelength information as second plurality of bits.

The claimed including by line terminator in grant message first plurality of bits and second plurality of bits and forwarding grant message by line terminator to element forcing execution of locally predefined function is disclosed by control unit (Figure 6, element 12) of OLT examines header of data received from core network to determine which ONU it is to be sent, control unit determines allocation of wavelengths and time slots to the different ONUs in the time frame concerned and control information generating portion (element 261) generates control information for notifying ONUs of their wavelength and time slot allocations and overhead information adding portion (element 262) adds this control information as overhead in data-carrying optical signals. Examiner interprets time slot and wavelength information as second plurality of bits according to an identification of a locally predefined function since this information causes ONU to tune into relevant time slot to optical signal whose wavelength corresponds to that field. See column 9, lines 17-67, column 10, lines 1-9, lines 23-67, column 11, lines 1-14.

The claimed wherein at least one network terminator of plurality of network terminators is coupled via said in-line element to line terminator by a dedicated branch and a common branch is disclosed by common fibre link to OLT and dedicated links to each ONU. See Figures 1 and 2, column 1, lines 1-59.

Regarding claims 3, 18, the claimed encapsulating grant message in downstream signal and downstream distributing downstream signal to plurality of network terminators is disclosed by the WDM optical signals produced by OLT in each time frame are broadcast to all connected ONUs via the downstream PON. See column 8, lines 44-47, lines 59-67, column 9, lines 1-16. The claimed capturing grant message out of downstream signal and forwarding captured grant

Art Unit: 2666

message to at least one element controller associated with element forcing execution of locally predefined function is disclosed by each ONU including a tunable filter connected to downstream PON for receiving optical signals where tunable filter (Figure 7, element 42) based on control signal applied thereto by wavelength control extraction unit (element 46) specifying one of the downstream wavelengths, selects the optical signal having the specified wavelength. See column 9, line 53-66, column 10, lines 23-67, column 11, lines 1-14.

Regarding claims 4, 9, the claimed line terminator to perform central control of an in-line element in a tree-like network is disclosed by passive optical network with optical line terminator (Figure 2, element 12) and plurality of optical network units (elements ONU 1-5) where each ONU includes a tunable filter connected to downstream PON for receiving WDM optical signals from OLT. See column 1, lines 10-39, column 8, lines 1-17, column 9, lines 53-60.

The claimed determining means to determine a first plurality of bits according to an identification of a selected element and a second plurality of bits according to an identification of a locally predefined function is disclosed by the control information is divided into two fields for each wavelength and each field identifies the ONUs which must select that wavelength in each successive time slot. Examiner interprets field identifying ONU for certain wavelength as first plurality of bits according to an identification of a selected element and time slot and wavelength information.

The claimed including means for including in grant message first plurality of bits and second plurality of bits and claimed forwarding means of grant message to element forcing execution of locally predefined function is disclosed by control unit (Figure 6, element 12) of OLT examines header of data received from core network to determine which ONU it is to be

Art Unit: 2666

sent, control unit determines allocation of wavelengths and time slots to the different ONUs in the time frame concerned and control information generating portion (element 261) generates control information for notifying ONUs of their wavelength and time slot allocations and overhead information adding portion (element 262) adds this control information as overhead in data-carrying optical signals. Examiner interprets field identifying ONU for certain wavelength as first plurality of bits according to an identification of a selected element and time slot and wavelength information as second plurality of bits according to an identification of a locally predefined function since this information causes ONU to tune into relevant time slot to optical signal whose wavelength corresponds to that field. See column 9, lines 17-67, column 10, lines 1-9, lines 23-67, column 11, lines 1-14.

The claimed tree-like network comprising a plurality of network terminators is coupled via in-line element to line terminator by a dedicated branch and a common branch is disclosed by common fibre link to OLT and dedicated links to each ONU. See Figures 1 and 2, column 1, lines 1-59.

Regarding claim 5, the claimed encapsulating means to encapsulate grant message in downstream signal and downstream distributing downstream signal to plurality of network terminators is disclosed by the WDM optical signals produced by OLT in each time frame are broadcast to all connected ONUs via the downstream PON. See column 8, lines 44-47, lines 59-67, column 9, lines 1-16.

Regarding claims 6, 9, the claimed element controller associated to a selected element out of a set of in-line elements in a tree-like network to force execution of a locally predefined function upon selected element under central control of line terminator is disclosed by ONU

Art Unit: 2666

including wavelength control extraction unit associated with tunable filter where control signal is applied to tunable filter to tune ONU to relevant time slot to optical signal whose wavelength corresponds to one found in field of downstream signal.

The claimed recognizing means being coupled to input of element controller to receive grant message transmitted by line terminator, grant message including first plurality of bits determined by line terminator according to identification of selected element and second plurality of bits according to identification of locally predefined function, recognizes first and second plurality of bits and generates control signal forcing execution of locally predefined function is disclosed by each ONU including a tunable filter connected to downstream PON for receiving control information where tunable filter (Figure 7, element 42), based on control signal applied thereto by wavelength control extraction unit (element 46) specifying one of the downstream wavelengths, tunes ONU to relevant time slot to optical signal whose wavelength corresponds to one found in field of downstream signal. The OLT generates the control information for notifying ONUs of their wavelength and time slot allocations and overhead information adding portion (element 262) adds this control information as overhead in data-carrying optical signals. The control information is divided into two fields for each wavelength and each field identifies the ONUs which must select that wavelength in each successive time slot. See column 9, lines 17-67, column 10, lines 1-9, lines 23-67, column 11, lines 1-14.

The claimed element controller is coupled downstream to line terminator and line terminator is being coupled via set of in-line elements comprising selected element to a plurality of network terminators by a dedicated branch and a common branch is disclosed by WCEU and

Art Unit: 2666

tunable filter downstream to OLT, and common fibre link to OLT and dedicated links to each ONU. See Figures 1 and 2, column 1, lines 1-59.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wright et al. in view of Smith et al. US 6,229,634.

Wright et al. discloses the limitations of the claimed element controller except for selected element being switch-able amplifier for amplifying upstream transmitted signals (claim 7) or a burst mode receiver (claim 8) coupled in common branch to line terminator for reception of upstream signals. Smith et al. disclose a PON with burst mode optical digital receiver and an amplifier means for amplifying up-converted signal. See column 1, lines 66-67, column 2, lines



Art Unit: 2666

1-57. At the time the invention was made it would have been obvious to a person of ordinary skill in the art to modify Wright et al. with use of burst mode receiver and amplifier of Smith et al. One of ordinary skill in the art would be motivated to do this to provide a method of processing incoming data bursts which avoids the need for altering the logic decision threshold when the signal is varying so it can operate with bursts which differ considerably in level. See column 2, lines 45-50.

### ***Response to Arguments***

5. Applicant's arguments with respect to claims 1-9 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Art Unit: 2666

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melanie Jagannathan whose telephone number is 571-272-3163.

The examiner can normally be reached Monday-Friday 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema S. Rao can be reached on 571-272-3174. The fax phone number for the organization where this application or proceeding is assigned is 571-273-3163.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MJ



**FRANK DUONG**  
**PRIMARY EXAMINER**